

JOURNAL OF SOUND AND VIBRATION

EDITOR
P. E. Doak

EDITORIAL BOARD

W. A. Allen
H. O. Berktaý
R. E. D. Bishop
B. L. Clarkson
R. Cohen
D. G. Crighton
I. Dyer
C. L. Dym
A. Freedman
G. M. L. Gladwell
M. Heckl
D. J. Johns
A. W. Leissa
D. J. Mead
H. G. Morgan
R. A. Piesse
E. J. Richards
D. W. Robinson
J. D. Robson
A. Tondl
G. B. Warburton

VOLUME 81
March to April 1982



ACADEMIC PRESS

LONDON NEW YORK TORONTO SYDNEY
SAN FRANCISCO

ISSN 0022-460X

CONTENTS OF VOLUME 81

NUMBER 1, 8 MARCH 1982

WHISTON, G. S. and THOMAS, G. D., Whirling instabilities in heat exchanger tube arrays	1
RUDOWSKI, J., Limit cycles in self-excited multi-degree-of-freedom systems	33
FIELDS, J. M. and WALKER, J. G., Comparing the relationships between noise level and annoyance in different surveys: a railway noise <i>vs.</i> aircraft and road traffic comparison	51
GUYADER, J. L., BOISSON, C. and LESUEUR, C., Energy transmission in finite coupled plates, part I: Theory	81
BOISSON, C., GUYADER, J. L., MILLOT, P. and LESUEUR, C., Energy transmission in finite coupled plates, part II: Application to an L shaped structure	93
BERT, C. W. and KUMAR, M., Vibration of cylindrical shells of bimodulus composite materials	107
TAYLOR, S. M., A comparison of models to predict annoyance reactions to noise from mixed sources	123

Letters to the Editor

LAURA, P. A. A., Comments on "Eigenfrequencies of flexibly clamped cantilever with concentrated mass at free end"	139
ÅKESSON, B. Å. and FRIBERG, P. O., Authors' reply	139
LAURA, P. A. A., FICCADENTI, G. M. and GROSSI, R. O., A comment on "Transverse vibrations and elastic stability of circular plates of variable thickness and with non-uniform boundary conditions"	140
SUBRAHMANYAM, K. B., KULKARNI, S. V. and RAO, P. M., Dean and Plass method calculations of the flexural frequencies of Timoshenko beams	141
VENKATESWARA RAO, G. and KANAKA RAJU, K., Stability of tapered cantilever columns with an elastic foundation subjected to a concentrated follower force at the free end	147

NUMBER 2, 22 MARCH 1982

HATWAL, H., MALLIK, A. K. and GHOSH, A., Non-linear vibrations of a harmonically excited autoparametric system	153
MAIDANIK, G., BIANCARDI, R. and EISLER, T., Use of decoupling to reduce the radiated noise generated by panels	165
IRIE, T., YAMADA, G. and KOIZUMI, H., The steady state out-of-plane response of an internally damped ring supported by springs in some bays	187
BENDAT, J. S. and PIERSOL, A. G., Spectral analysis of non-linear systems involving square-law operations	199
GERSCH, W. and BROTHERTON, T., Estimation of stationary structural system parameters from non-stationary random vibration data: a locally stationary model method	215

DAWE, D. J. and MORRIS, I. R., Vibration of curved plate assemblies subjected to membrane stresses	229
DYBA, R. and ŻÓŁTOGÓRSKI, B., Lagrangian boundary condition and non-linear propagation as causes of Gaussian noise spectrum deformation	239
DUBIGEON, S. and KIM, C. B., A finite element for the study of coupled bending-prevented torsion of a straight beam	255
MAKAREWICZ, R., Theoretical foundations of some problems of environmental acoustics	271
SAKATA, T. and HAYASHI, T., Natural frequencies of clamped orthotropic skew plates	287

Letters to the Editor

CHANG SHANGCHOW, The fundamental frequency of an elastic system and an improved displacement function	299
MASSALAS, C., DALAMANGAS, A. and TZIVANIDIS, G., A note on the dynamics of thermoelastic thin plates	303
MICKENS, R. E., A regular perturbation technique for non-linearly coupled oscillators in resonance	307

NUMBER 3, 8 APRIL 1982

MCDANIEL, T. J. and CARROLL, M. J., Dynamics of bi-periodic structures	311
TAM, C. K. W. and TANNA, H. K., Shock associated noise of supersonic jets from convergent-divergent nozzles	337
PRITZ, T., Transfer function method for investigating the complex modulus of acoustic materials: rod-like specimen	359
SCHAFFAR, M. and HANCY, J. P., Investigation of the noise emitting zones of a cold jet via causality correlations	377
BÍLÝ, M. and ČAČKO, J., Simulation of random processes with various probability density functions	393
JACOBSEN, F., Decay rates and wall absorption at low frequencies	405
ATTENBOROUGH, K., Predicted ground effect for highway noise	413
LIN, W. H., Free transverse vibrations of uniform circular plates and membranes with eccentric holes	425

Letters to the Editor

JAYAKUMARI, H. B., MUNJAL, M. L. and SACHDEV, P. L., The flow structure of a nearly ideally expanded supersonic jet with a mean shear	437
LAURA, P. A. A., GROSSI, R. O. and ERCOLI, L., Comments on "Natural longitudinal frequencies of a uniform rod with a tip mass or a spring"	441
KOHOUTEK, R., Author's reply	442
LY, B. L., A note on seismic response analysis by modal superposition	444

KAMATH, M., NARASIMHAN, R., NATARAJ, C. and RAMAMURTI, V., Dynamic response of multicylinder engines with a viscous or hysteretic crankshaft damper	448
---	-----

NUMBER 4, 22 APRIL 1982

IMAICHI, K., TSUJIMOTO, Y. and TAKABATAKE, S., Theoretical analysis of infrasound radiation from an oscillating bridge	453
GENIN, J., TING, E. C. and VAFA, Z., Curved bridge response to a moving vehicle	469
MUNJAL, M. L. and HECKL, M., Some mechanisms of excitation of a railway wheel	477
MUNJAL, M. L. and HECKL, M., Vibrations of a periodic rail-sleeper system excited by an oscillating stationary transverse force	491
FULLER, C. R. and FAHY, F. J., Characteristics of wave propagation and energy distributions in cylindrical elastic shells filled with fluid	501
KELLY, J. J., NAYFEH, A. H. and WATSON, L. T., Acoustic propagation in partially choked converging-diverging ducts	519
WHITE, M. F. and LIASJØ, K. H., Measurement of mobility and damping of floors	535
KRUZINS, E. and FRICKE, F., The prediction of sound fields in non-diffuse spaces by a "random walk" approach	549
KAR, R. C. and HAUGER, W., Stability of a pretwisted cantilever beam subjected to dissipative and follower forces	565
CHONG, K. P., CHEUNG, Y. K. and THAM, L. G., Free vibration of formed sandwich panel	575

Letters to the Editor

NARITA, Y., Vibration of a non-uniform cantilever beam partially immersed in an ideal liquid	583
SHIVAMOGGI, B. K., Radiative corrections to a non-linear oscillator	587
MICKENS, R. E., Author's reply	587
GUTIÉRREZ, R. H. and LAURA, P. A. A., Transverse vibrations of a polygonal plate with a rigid mass on the inside edge	589
RAMAKRISHNAN, R., A note on the calculation of Wiener-Hopf split functions	592
ANNOUNCEMENTS	597
BOOK REVIEWS	609
HUMAN RESPONSE TO VIBRATION	613
INDEX TO VOLUME 81	617

Copyright © 1982, by Academic Press Inc. (London) Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Great Britain